

10th International Conference on Sport Sciences Research and Technology Support (icSPORTS 2022)

Valletta, Malta
27 – 28 October 2022

Editors:

**Carlo Capelli
Evert Verhagen
Pedro Pezarat-Correia**

**João Vilas-Boas
Jan Cabri**

ISBN: 978-1-7138-6391-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2022) by SCITEPRESS – Science and Technology Publications, Lda.
All rights reserved.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact SCITEPRESS – Science and Technology Publications, Lda.
at the address below.

SCITEPRESS – Science and Technology Publications, Lda.
Avenida de S. Francisco Xavier, Lote 7 Cv. C,
2900-616 Setúbal, Portugal

Phone: +351 265 520 185

Fax: +351 265520 186

info@scitepress.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

CONTENTS

INVITED SPEAKERS

KEYNOTE SPEAKERS

Estimating Bone Loading during Physical Activity: Where Do We Go next? 5
Hannah Rice

Reconsidering Energy Sources and Destinations in Sport Activities 11
Alberto Minetti

PAPERS

FULL PAPERS

On-demand Electric Thrust Assistance for Muscle-powered Watercraft: PADDELEC 17
René Budich, Stephan Zipser, Jakob Doblaski and Jonas Seidel

Development of a Serious Game to Improve Decision-making Skills of Martial Arts Referees 29
André Salmhofer, Lucian Gutica-Florescu, Dominik Hoelbling, Roland Breiteneder, Rene Baranyi and Thomas Grechenig

Machine Learning for Fatigue Detection using Fitbit Fitness Trackers 41
Erik Johannes Husom, Rustem Dautov, Adela-Aniela Nedisan, Fotis Gonidis, Spyridon Papatzelos and Nikolaos Malamas

Using LSTM Networks and Future Gradient Values to Forecast Heart Rate in Biking 53
Henry Gilbert, Jules White, Quchen Fu and Douglas C. Schmidt

Training with a Pneumatic Assist Suit to Generate Lower-Body Twisting during the Forehand Swing in Table Tennis 61
Akihiko Kashiwagi, Hayato Nakamura, Satoshi Nishikawa and Kazuo Kiguchi

SHORT PAPERS

Does Kinesio Taping Functional Correction Technique Affect Walking Plantar Pressures? 71
Dalibor Kiseljak, Filip Bolčević and Vladimir Medved

Activity Trackers: Comparing Athlete Runners versus Health Runners through a Dedicated Technology Acceptance Model 78
Ricardo Sol and Karolina Baras

Can Health Status and Lifestyle Indicators Predict Amateur Soccer Players Performance Level? A Preliminary Study 86
Beatrice De Lazzari, Giuseppe Vannozzi, Federico Caramia, Filippo Lupi, Paolo Salvatore and Valentina Camomilla

A Preliminary Investigation into the Factors Impacting Tyre Failure in Wheelchair Basketball 93
Rajtilak Kapoor, Hugo Espinosa and David Rowlands

Body Movement Recognition System using Deep Learning: An Exploratory Study 101
António Saleiro, Marcos Costa, Jorge Ribeiro and Bruno Silva

The Elusive Features of Success in Soccer Passes: A Machine Learning Perspective <i>Hugo Muacho, Ricardo Ribeiro and Rui J. Lopes</i>	110
Computational Fluid Dynamics to Reach a High-fidelity Simulator of Performance in Rowing <i>Alban Leroyer and Sophie Barré</i>	117
Tracking Data Visual Representations for Sports Broadcasting Enrichment <i>Murilo Couceiro, Inês Rito Lima, Alexandre Ulisses, Tiago Mendes-Neves and João Mendes-Moreira</i>	125
Novel Approach for a Hybrid Cushioning System in Running Shoes based on Halbach Arrays <i>Philipp Kornfeind and Arnold Baca</i>	132
Assessing Psychomotor Abilities in Handcyclists using Computerized Tests: An Initial Study <i>Wojciech Pasko, Justyna Dydek, Janusz Zielinski, Tomasz Hulewicz, Maciej Śliż, Bartosz Dziadek and Krzysztof Przednowek</i>	137
Pes Planus Plantaris (Flat Foot) Decreases Postural Stability of Basketball Student-athletes through Ground Reaction Force Vector (vGRF) <i>Def Primal, Sasanty Kusumaningtyas and Ermita I. Ibrahim</i>	143
AUTHOR INDEX	153